Docket No.: 1152-0310PUS1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Michiyuki SUGINO

Application No.: Not Yet Assigned	Confirmation No.: N/A
Filed: October 8, 2004	Art Unit: N/A
For: LIQUID CRYSTAL DISPLAY	Examiner: Not Yet Assigned

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The PTO is requested to use the amended sheets/claims attached hereto (which correspond to Article 19 amendments or to claims attached to the International Preliminary Examination Report (Article 34)) during prosecution of the above-identified national phase PCT application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: October 8, 2004

Respectfully submitted,

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Attachment(s)

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display period to the next,

wherein the write-gray scale level determining means determines the write-gray scale level data to be supplied to the liquid crystal display panel, based on achievable gray

5   scale level data of the liquid crystal display panel, corresponding to input image data at the previous vertical display period, output from the achievable gray scale level determining means and the input image data at the current vertical display period, and--.

10   Claim 2, lines 6-7, delete "an actual measurement of".

(5) Claim 4, line 1, change "The liquid crystal display according to Claim 1," to --A liquid crystal display for image display using a liquid crystal display panel, comprising:

a write-gray scale level determining means for

15   determining write-gray scale level data for input image data that compensates an optical response characteristic of the liquid crystal display panel, in accordance with, at least, a combination of gray scale level transitions from a previous vertical display period to a current vertical display period;

20   and

an achievable gray scale level determining means for generating achievable gray scale level data for input image data after a lapse of one vertical display period of the liquid crystal display panel, in accordance with, at least, a

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combination of gray scale level transitions from one vertical display period to the next,

wherein the write-gray scale level determining means determines the write-gray scale level data to be supplied

5 to the liquid crystal display panel, based on achievable gray scale level data of the liquid crystal display panel, corresponding to input image data at the previous vertical display period, output from the achievable gray scale level determining means and the input image data at the current

10 vertical display period, and--.

Claim 4, line 8, delete "an actual measurement of".
(6) Claim 5, line 1, change "The liquid crystal display according to Claim 1," to --A liquid crystal display for image display using a liquid crystal display panel, comprising:

15 a write-gray scale level determining means for determining write-gray scale level data for input image data that compensates an optical response characteristic of the liquid crystal display panel, in accordance with, at least, a combination of gray scale level transitions from a previous

20 vertical display period to a current vertical display period;
--.

In addition, claim 5, line 3, insert -- wherein the write-gray scale level determining means determines the write-gray scale level data to be supplied to the liquid crystal

display panel, based on achievable gray scale level data of the liquid crystal display panel, corresponding to input image data at the previous vertical display period, output from the achievable gray scale level determining means and the

5   input image data at the current vertical display period, and

-- after "temperature".

(3)   Fig. 3, change "Address previous image data: 8 bit" to -- Address (previous image data: 8 bit)--.

Fig. 3, change "Address (previous image data: 8 bit)"

10   to -- Address (current image data: 8 bit)--.

6.   List of the appended documents:

(1)   Amended Description

Pages 7-8   One copy for each

15   (2)   Amended Claims

Pages 28-30, 30/1, and 30/2   One copy for each

(3)   Amended Drawings

Page 3/10   one copy

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determines the write-gray scale level data to be supplied to the liquid crystal display panel, based on achievable gray scale level data of the liquid crystal display panel, corresponding to input image data at the previous vertical

5   display period, output from the achievable gray scale level determining means and the input image data at the current vertical display period.

The second invention of this application is characterized in that the achievable gray scale level determining means,

10   referring to a table memory that stores achievable gray scale level parameters representing achievable gray scale brightness after the lapse of one vertical display period of the liquid crystal display panel, obtained from the optical response characteristic of the liquid crystal display panel,

15   determines the achievable gray scale level data after the lapse of one vertical display period of the liquid crystal display panel, in accordance with the input image data.

The third invention of this application is characterized in that the table memory stores achievable gray scale level

20   parameters which are accessible by designating the achievable gray scale level data of the liquid crystal display panel corresponding to the image data at the previous vertical display period and the input image data at the current vertical display period.

25   The fourth invention of this application is characterized

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in that the achievable gray scale level determining means
determines the achievable gray scale level data corresponding
to the input image data after the lapse of one vertical display
period of the liquid crystal display panel, using a function

5   that represents achievable gray scale brightness after the
lapse of one vertical display period of the liquid crystal
display panel, obtained from the optical response
characteristic of the liquid crystal display panel.

The fifth invention of this application further comprises

10   a temperature detecting means for detecting a device interior
temperature, and is characterized in that the achievable gray
scale level determining means, based on the detected device
interior temperature, determines the achievable gray scale
level data for the input image data after the lapse of one

15   vertical display period.

The sixth invention of this application is characterized
in that the write-gray scale level determining means, based
on the detected device interior temperature, determines the
write-gray scale level data for compensating the optical

20   response characteristic of the liquid crystal display panel.

In the liquid crystal display of the present invention,
the achievable gray scale level data that represents the
actually achievable gray scale brightness after a lapse of

CLAIMS

1.   (Cancel)

2. (Amended) A liquid crystal display for image display using
a liquid crystal display panel, comprising:

a write-gray scale level determining means for
determining write-gray scale level data for input image data
that compensates an optical response characteristic of the
liquid crystal display panel, in accordance with, at least,
a combination of gray scale level transitions from a previous
vertical display period to a current vertical display period;
and

an achievable gray scale level determining means for
generating achievable gray scale level data for input image
data after a lapse of one vertical display period of the liquid
crystal display panel, in accordance with, at least, a
combination of gray scale level transitions from one vertical
display period to the next,

wherein the write-gray scale level determining means
determines the write-gray scale level data to be supplied
to the liquid crystal display panel, based on achievable gray
scale level data of the liquid crystal display panel,
corresponding to input image data at the previous vertical
display period, output from the achievable gray scale level
determining means and the input image data at the current

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vertical display period, and

 wherein the achievable gray scale level determining means, referring to a table memory that stores achievable gray scale level parameters representing achievable gray scale

5 brightness after the lapse of one vertical display period of the liquid crystal display panel, obtained from the optical response characteristic of the liquid crystal display panel, determines the achievable gray scale level data after the lapse of one vertical display period of the liquid crystal

10 display panel, in accordance with the input image data.

 3. The liquid crystal display according to Claim 2, wherein the table memory stores achievable gray scale level parameters which are accessible by designating the achievable gray scale

15 level data of the liquid crystal display panel corresponding to the image data at the previous vertical display period and the input image data at the current vertical display period.

 4. (Amended) A liquid crystal display for image display using

20 a liquid crystal display panel, comprising:

 a write-gray scale level determining means for determining write-gray scale level data for input image data that compensates an optical response characteristic of the liquid crystal display panel, in accordance with, at least,

25 a combination of gray scale level transitions from a previous

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vertical display period to a current vertical display period; and

an achievable gray scale level determining means for generating achievable gray scale level data for input image

5 data after a lapse of one vertical display period of the liquid crystal display panel, in accordance with, at least, a combination of gray scale level transitions from one vertical display period to the next,

wherein the write-gray scale level determining means

10 determines the write-gray scale level data to be supplied to the liquid crystal display panel, based on achievable gray scale level data of the liquid crystal display panel, corresponding to input image data at the previous vertical display period, output from the achievable gray scale level

15 determining means and the input image data at the current vertical display period, and

wherein the achievable gray scale level determining means determines the achievable gray scale level data corresponding to the input image data after the lapse of one vertical display

20 period of the liquid crystal display panel, using a function that represents achievable gray scale brightness after the lapse of one vertical display period of the liquid crystal display panel, obtained from the optical response characteristic of the liquid crystal display panel.

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5. (Amended)   A liquid crystal display for image display using a liquid crystal display panel, comprising:

a write-gray scale level determining means for determining write-gray scale level data for input image data that compensates an optical response characteristic of the liquid crystal display panel, in accordance with, at least, a combination of gray scale level transitions from a previous vertical display period to a current vertical display period;

an achievable gray scale level determining means for generating achievable gray scale level data for input image data after a lapse of one vertical display period of the liquid crystal display panel, in accordance with, at least, a combination of gray scale level transitions from one vertical display period to the next; and

a temperature detecting means for detecting a device interior temperature,

wherein the write-gray scale level determining means determines the write-gray scale level data to be supplied to the liquid crystal display panel, based on achievable gray scale level data of the liquid crystal display panel, corresponding to input image data at the previous vertical display period, output from the achievable gray scale level determining means and the input image data at the current vertical display period, and

wherein the achievable gray scale level determining means,

based on the detected device interior temperature, determines the achievable gray scale level data for the input image data after the lapse of one vertical display period of the liquid crystal display panel.

5

6.   The liquid crystal display according to Claim 5, wherein the write-gray scale level determining means, based on the detected device interior temperature, determines the write-gray scale level data for compensating the optical

10   response characteristic of the liquid crystal display panel.

FIG. 3

Address (Current Image Data : 8 bit)

Prev \ Curr	0	1	2	3	4	5	…	250	251	252	253	254	255
0	0	1	2	3	4	5	…	250	251	252	253	254	255
1	0	2	4	6	8	9	…	252	253	254	255	255	255
2	0	1	2	5	7		…	253	255	255	255	255	255
3	0	0	2	4	6		…	253	254	255	255	255	255
4	0	1	3	4			…	253	254	255	255	255	255
5	0	2	3	3			…	254	255	255			
…							⋱						255
250	0	0	1	2			…	247	249	250	251	253	255
251	0	0	1	2	2		…	249	250	252	253	255	255
252	0	0	1	2	2		…	250	251	253	255	255	255
253	0	0	1	2	2		…	250	252	253	255	255	255
254	0	0	1	2	2		…	249	250	252	254	255	255
255	0	0	1	2	3		…	249	250	252	254	255	255

Address (Previous Image Data : 8 bit)